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10/024,052	12/17/2001	Gin Liu	NORT-0106-US	5330
21906	7590	11/17/2006	EXAMINER	
TROP PRUNER & HU, PC 1616 S. VOSS ROAD, SUITE 750 HOUSTON, TX 77057-2631			DUONG, FRANK	
			ART UNIT	PAPER NUMBER
			2616	

DATE MAILED: 11/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/024,052

Applicant(s)

LIU ET AL.

Examiner

Frank Duong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-12 and 15-32 is/are rejected.
- 7) ☒ Claim(s) 13,14 and 31-34 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. This Office Action is a response to the amendment dated 05/31/06. Originally presented and previously prosecuted claims 2-30 and newly added claims 31-34 are pending in the application.

#### ***Claim Rejections - 35 USC § 103***

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 2-12, and 15-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eichen et al (USP 6,292,539) (hereinafter "Eichen").

Regarding **claim 2**, in accordance with Eichen reference entirety, Eichen teaches a method (*Fig. 5 and corresponding description at col. 4, line 59 to col. 7, line 30*) of determining communication channel performance (*loop qualification; see col. 1, lines 6-9 and thereafter*), comprising: calculating a loop length based on records used for high-speed access qualification (*Fig. 5; steps 240-250 and col. 5, line 64 to col. 6, line 20*); determining an actual loop length of the communication channel (*Fig. 5; steps 260-270 and corresponding description at col. 6, lines 21-46*); comparing the calculated loop length and the actual loop length to determine if the records are accurate (*Fig. 5; step 280 and corresponding description at col. 6, lines 47-60*) ; and generating a value for updating the records in response to a difference between the calculated loop length and actual loop length (*col. 7, lines 5-13*). Eichen fails to explicitly disclose communications speed (bandwidth) in place of the loop length. However, at col. 1, line 57 to col. 2, line 9, Eichen discusses the signal attenuation restrictions of digital subscriber loop technologies depends on a customer upstream/downstream bandwidth. In addition, the signal attenuation also depends on the loop length. A skilled artisan would easily derive the interrelationship between the bandwidth and the loop length based on the above recitation.

Thus, it would have been obvious to those skilled in the art at the time of the invention was made to modify or derive the Eichen's teaching from the interrelationship between the bandwidth and the loop length to arrive the claimed invention with a motivation to qualify a copper loop for digital subscriber loop services on the basis of

realtime electrical measurements as well as records stored in telecommunications provider database (*col. 2, lines 52-55*).

Regarding **claim 3**, in addition to features recited in base claim 2 (see rationales discussed above), Eichen further discloses providing a user interface to display content of the records stored in the database (*this limitation is inherently corresponding to graphical user interface 194 or character interface 190 discussed at col. 4, lines 47-50 or a computer display at the server 100 (not shown; inherent)*).

Regarding **claim 4**, in addition to features recited in base claim 3 (see rationales discussed above), Eichen further discloses wherein generating the value comprises receiving user modification of the content of the records displayed in the user interface (*this limitation is inherently corresponding to graphical user interface 194 or character interface 190 discussed at col. 4, lines 47-50 or a computer display at the server 100 (not shown; inherent)*).

Regarding **claim 5**, in addition to features recited in base claim 2 (see rationales discussed above), Eichen further discloses wherein calculating the data communications speed of the communications channel comprises calculating the data communication speed of a Digital Subscriber Line subscriber loop (*at col. 1, lines 23-33, Eichen discloses the loop qualification is applicable in all existing twisted pair copper loops to include ADSL*).

Regarding **claim 6**, in addition to features recited in base claim 5 (see rationales discussed above), Eichen further discloses wherein determining the actual data communication speed comprising accessing a value in a Digital Subscriber Line access

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module (*at col. 6, lines 21-25, Eichen discloses the actual measurement is from a remote test system 140*).

Regarding **claim 7**, in addition to features recited in base claim 2 (see rationales discussed above), Eichen further discloses accessing the records in the database system (*Fig. 5; elements 110, 120, and 130*), the records containing **at least one of** the following information: ***insulation type of a cable included in the communications channel***; a percentage of a large gauge section of the cable; a percentage of a small gauge section of the cable; a gauge size of the large gauge section; a gauge size of the small gauge section of the cable; an installation technique of the large gauge section; and an installation technique of the small gauge section (*col. 5, line 64 to col. 6, line 12, Eichen discloses variety of loop topology data in topology database 120 includes, among other things, gauge of wire, cable type, location of load coils and location of bridge tap*).

Regarding **claim 8**, in addition to features recited in base claim 2 (see rationales discussed above), Eichen further discloses accessing the records in a database system, the records containing **at least one of** the following information: ***insulation type of a cable included in the communications channel***; a percentage of a large gauge section of the cable; a percentage of a s' mall gauge section of the cable; a gauge size of the large gauge section; a gauge size of the small gauge section of the cable; an installation technique of the large gauge section; an installation technique of the small gauge section; a tilling type for the large gauge section; a filling type for the small gauge section; an indication of a region at which the cable is located; an indication of a

distance of a communications channel segment between a Digital Subscriber Line access module and a wire distribution frame; and an indication of a gauge of a cable in the communications channel segment between the Digital Subscriber Line access module and wire distribution Frame (*col. 5, line 64 to col. 6, line 12, Eichen discloses variety of loop topology data in topology database 120 includes, among other things, gauge of wire, cable type, location of load coils and location of bridge tap*).

Regarding **claim 9**, in addition to features recited in base claim 2 (see rationales discussed above), Eichen further discloses wherein calculating the data communications speed of the communications channel based on the records comprises calculating the data communications speed of the communications channel based on the records indicating physical characteristics of the communications channel (*col. 5, line 64 to col. 6, line 12, Eichen discloses server 100 using loop identifier to query topology database 120 to obtain a variety of loop topology data to include loop length, wire gauge for each loop segment, cable type, location of coils and location of bridge taps or recent measurements of the loop length*).

Regarding **claim 10**, in addition to features recited in base claim 9 (see rationales discussed above), Eichen further discloses wherein calculating the data communications speed further comprises determining electrical characteristics based on the records indicating physical characteristics of the communications channel (*col. 6, lines 13-20*).

Regarding **claim 11**, in addition to features recited in base claim 10 (see rationales discussed above), Eichen further discloses wherein calculating the data

communications speed comprises causing test equipment to probe the communications channel to determine a length of the communications channel (*col. 6, lines 7-12 or lines 21-26*).

Regarding **claim 12**, in addition to features recited in base claim 10 (see rationales discussed above), Eichen further discloses wherein calculating the data communications speed of the communications channel comprises calculating the data communications speed of a Digital Subscriber Line subscribe loop (*at col. 1, lines 23-33, Eichen discloses the loop qualification is applicable in all existing twisted pair copper loops to include ADSL*).

Regarding **claim 15**, in addition to features recited in base claim 2 (see rationales discussed above), Eichen further discloses wherein calculating the data communications speed of the communications channel comprises calculating the data communications speed of a communications channel between customer premise equipment (client) and an access module (server) (*client-server architecture is depicted in Fig. 4 and corresponding description at col. 4, line 14-20*).

Regarding **claim 16**, in addition to features recited in base claim 2 (see rationales discussed above), Eichen further discloses wherein calculating the data communications speed of the communications channel comprises calculating the data communications speed of a group of plural subscriber loops (Fig. 4; SWITCHES 1-N) coupled to respective plural customer premise equipment (*CPEs connected to SWITCHES 1-N are not shown (see Fig. 4 for connection details), but inherent because*



*the instant invention relates to loop qualification of existing twisted pair copper loops for digital subscriber loop service (col. 1, lines 6-9)).*

Regarding **claim 17**, in accordance with Eichen reference entirety, Eichen shows an article (Fig. 4; 100) comprising at least one storage medium (110, 120, 130 or 140) containing instructions (105) that when executed cause one or more systems (Fig. 4) to: access records pertaining to characteristics of a communications channel (Fig. 5; steps 240-250 and col. 5, line 64 to col. 6, line 20); determine variance between a computed loop length of the communications channel based on the records and an actual loop length of the communications channel (Fig. 5; steps 260-270 and corresponding description at col. 6, lines 21-46); and update the records based on the determined variance (Fig. 5; step 280 and corresponding description at col. 6, lines 47-60 and col. 7, lines 5-13). Eichen fails to explicitly disclose communications speed (bandwidth) in place of the loop length. However, at col. 1, line 57 to col. 2, line 9, Eichen discusses the signal attenuation restrictions of digital subscriber loop technologies depends on a customer upstream/downstream bandwidth. In addition, the signal attenuation also depends on the loop length. A skilled artisan would easily derive the interrelationship between the bandwidth and the loop length based on the above recitation.

Thus, it would have been obvious to those skilled in the art at the time of the invention was made to modify or derive the Eichen's teaching from the interrelationship between the bandwidth and the loop length to arrive the claimed invention with a motivation to qualify a copper loop for digital subscriber loop services on the basis of

realtime electrical measurements as well as records stored in telecommunications provider database (*col. 2, lines 52-55*).

Regarding **claim 18**, addition to features recited in base claim 17 (see rationales discussed above), Eichen further discloses wherein the instructions when executed cause the one or more systems to access the records pertaining to the characteristics of a Digital Subscriber Line subscriber loop (*col. 5, line 64 to col. 6, line 12*).

Regarding **claim 19**, addition to features recited in base claim 18 (see rationales discussed above), Eichen further discloses wherein the instructions when executed cause the one or more systems to access records pertaining to physical characteristics of Digital Subscriber Line subscriber loop (*col. 5, line 64 to col. 6, line 12*).

Regarding **claim 20**, addition to features recited in base claim 17 (see rationales discussed above), Eichen further discloses wherein the instructions when executed cause the one or more systems to access records pertaining to the characteristics of a group of Digital Subscriber Line subscriber loops, the communications channel comprising the group of Digital Subscriber Line subscriber loops (Fig. 4; SWITCHES 1-N).

Regarding **claim 21**, addition to features recited in base claim 17 (see rationales discussed above), Eichen further discloses wherein the instructions when executed cause the one or more systems to further calculate the predicted data communications speed based on the records (*col. 5, line 64 to col. 6, line 12*).

Regarding **claim 22**, addition to features recited in base claim 17 (see rationales discussed above), Eichen further discloses wherein the instructions when executed

cause the one or more systems to further provide a graphical user interface to display the records (*this limitation is inherently corresponding to graphical user interface 194 or character interface 190 discussed at col. 4, lines 47-50 or a computer display at the server 100 (not shown; inherent)*).

Regarding **claim 23**, addition to features recited in base claim 22 (see rationales discussed above), Eichen further discloses wherein the instructions when executed cause the one or more systems to update the records in response to user input of one or more updated values (*this limitation is inherently corresponding to graphical user interface 194 or character interface 190 discussed at col. 4, lines 47-50 or a computer display at the server 100 (not shown; inherent)*).

Regarding **claim 24**, addition to features recited in base claim 17 (see rationales discussed above), Eichen further discloses wherein the instructions when executed cause the one or more systems to further determine the actual data communications speed by accessing a value in a Digital Subscribe Line access module (*at col. 6, lines 21-25, Eichen discloses the actual measurement is from a remote test system 140*).

Regarding **claim 25**, addition to features recited in base claim 17 (see rationales discussed above), Eichen further discloses wherein the instructions when executed cause the one or more systems to further perform a loop qualification process of the communications channel using the updated records to qualify the communications channel for Digital Subscribe Line data access (col. 7, lines 5-13).

Regarding **claim 26**, in accordance with Eichen reference entirety, Eichen shows a system (Fig. 4) comprising: an interface (*Fig. 4; element 112, 122, 132, or 142*)

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configured to access records pertaining to characteristics of a communications channel (*col. 4, lines 31-34*); and a controller (*Fig. 4; element 100*) configured to receive an estimated loop length of the communications channel that is calculated based on the records (*Fig. 5; steps 240-250 and col. 5, line 64 to col. 6, line 20*); the controller configured to receive an indication of an actual loop length of the communications channel (*Fig. 5; steps 260-270 and corresponding description at col. 6, lines 21-46*); the controller configured to compare the estimated loop length with the actual loop length and to update the records to reduce a variance between the calculated loop length and the estimated loop length in response to the comparing (*Fig. 5; step 280 and corresponding description at col. 6, lines 47-60 and col. 7, lines 5-13*).

Eichen fails to explicitly disclose communications bandwidth in place of the loop length. However, at *col. 1, line 57 to col. 2, line 9*, Eichen discusses the signal attenuation restrictions of digital subscriber loop technologies depends on a customer upstream/downstream bandwidth. In addition, the signal attenuation also depends on the loop length. A skilled artisan would easily derive the interrelationship between the bandwidth and the loop length based on the above recitation. Moreover, Eichen (at *col. 6, line 56 to col. 7, line 1*) also discloses the expert system determines how much bandwidth can be support in both upstream and downstream directions.

Thus, it would have been obvious to those skilled in the art at the time of the invention was made to modify or derive the Eichen's teaching from the interrelationship between the bandwidth and the loop length to arrive the claimed invention with a motivation to qualify a copper loop for digital subscriber loop services on the basis of

realtime electrical measurements as well as records stored in telecommunications provider database (*col. 2, lines 52-55*).

Regarding **claim 27**, addition to features recited in base claim 26 (see rationales discussed above), Eichen further discloses wherein the communications channel comprises a Digital Subscriber Line subscriber loop (*at col. 1, lines 23-33, Eichen discloses the loop qualification is applicable in all existing twisted pair copper loops to include ADSL*).

3. Claims 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eichen in view of Pett et al (USP 6,209,108) (hereinafter "Pett").

Regarding **claim 28**, in addition to features recited in base claim 2 (see rationales discussed above), Eichen fails to further discloses "*wherein generating the value for updating the records comprises generating the value that is for adjusting a value contained in the records in response to the difference being greater than a predefined threshold*". However, such limitations lacks thereof from Eichen reference are well known and disclosed by Pett.

In accordance with Pett reference entirety, Pett discloses a method for testing VDSL loops, comprising, among other limitations, the limitations of "*wherein generating the value for updating the records comprises generating the value that is for adjusting a value contained in the records in response to the difference being greater than a predefined threshold*" ('108, col. 3, lines 30-44) to provide an economical and accurate

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testing process which can emphasize loop pre-qualification, noise measurement, and drop replacement ('108, col. 1, lines 65-67).

Thus, it would have been obvious to those skilled in the art, having Eichen and Pett references readily available, at the time of the invention was made to modify or implement Pett's teaching into Eichen's method to arrive the claimed invention with a motivation to provide an economical and accurate testing process which can emphasize loop pre-qualification, noise measurement, and drop replacement ('108, col. 1, lines 65-67).

Regarding **claim 29**, addition to features recited in base claim 17 (see rationales discussed above), Eichen fails to further disclose "*wherein updating the records comprises updating the records to change at least a value in the records in response to determining that the variance exceeds a predefined threshold*". However, such limitations lacks thereof from Eichen reference are well known and disclosed by Pett.

In accordance with Pett reference entirety, Pett discloses a method for testing VDSL loops, comprising, among other limitations, the limitations of "*wherein updating the records comprises updating the records to change at least a value in the records in response to determining that the variance exceeds a predefined threshold*" ('108, col. 3, lines 30-44) to provide an economical and accurate testing process which can emphasize loop pre-qualification, noise measurement, and drop replacement ('108, col. 1, lines 65-67).

Thus, it would have been obvious to those skilled in the art, having Eichen and Pett references readily available, at the time of the invention was made to modify or

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implement Pett's teaching into Eichen's method to arrive the claimed invention with a motivation to provide an economical and accurate testing process which can emphasize loop pre-qualification, noise measurement, and drop replacement ('108, col. 1, lines 65-67).

Regarding **claim 30**, addition to features recited in base claim 26 (see rationales discussed above), Eichen fails to further disclose "*wherein the records are updated by changing at least a value in the records in response to determining that the variance is greater than a predefined threshold*". However, such limitations lacks thereof from Eichen reference are well known and disclosed by Pett.

In accordance with Pett reference entirety, Pett discloses a method for testing VDSL loops, comprising, among other limitations, the limitations of "*wherein the records are updated by changing at least a value in the records in response to determining that the variance is greater than a predefined threshold*" ('108, col. 3, lines 30-44) to provide an economical and accurate testing process which can emphasize loop pre-qualification, noise measurement, and drop replacement ('108, col. 1, lines 65-67).

Thus, it would have been obvious to those skilled in the art, having Eichen and Pett references readily available, at the time of the invention was made to modify or implement Pett's teaching into Eichen's method to arrive the claimed invention with a motivation to provide an economical and accurate testing process which can emphasize loop pre-qualification, noise measurement, and drop replacement ('108, col. 1, lines 65-67).

***Allowable Subject Matter***

4. Claims 13-14 and 31-34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

5. Applicant's arguments filed 09/06/06 have been fully considered but they are not persuasive. Applicants' arguments will be addressed hereinbelow in the order in which they appear in the response filed 09/06/06.

In the Remarks of the outstanding response, on pages 9-10, pertaining the rejection of claim 2 under 35 U.S.C. §103(a) as being unpatentable over Eichen et al (USP 6,292,539), Applicants disagree with the Examiner's interpretation of Eichen reference corresponding to the claimed limitation. Applicants repeat verbatim the recited limitation in claim 2 and blatantly argue the Eichen reference fails to basically teach all of the claimed limitation. To support the argument, the Applicants give off the mark interpretation of several passages of the Eichen. The Applicants just plainly fails to recognize the Examiner's clear position in the Office Action.

In response Examiner respectfully disagrees and asserts the Office Action has clearly pointed out the claimed limitations corresponding to that taught by Eichen. A mere difference between the claimed limitation and that claimed is the terminology of "data communication speed", recited in the claim, and "loop length", disclosed in Eichen. However, the interrelationship between the above differences is obvious to those skilled



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in the art. Examiner has clearly pointed out in the Office Action that known the loop length would render it is obvious to know the bandwidth or data rate or speed from the relationship of signal attenuation restricts the bandwidth and the signal attenuation depends on the loop length. Examiner asserts the Office Action has clearly established the prima facie case of obviousness.

Examiner believes an earnest attempt has been made in addressing all of the Applicants' arguments. Due to the amendment fails to place the instant application in a favorable condition for allowance and the arguments are not persuasive, the rejection is maintained.

### ***Conclusion***

**6. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

**7.** Any inquiry concerning this communication or earlier communications from the

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examiner should be directed to Frank Duong whose telephone number is 571-272-3164. The examiner can normally be reached on 7:00AM-3:30PM, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad Matar can be reached on 571-272-7488. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



**FRANK DUONG  
PRIMARY EXAMINER**

November 14, 2006